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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,400	11/20/2003	Aura Yanavi	14846-36	9738

28221 7590 02/05/2007
PATENT DOCKET ADMINISTRATOR
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EXAMINER

DAO, THUY CHAN

ART UNIT	PAPER NUMBER
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2192

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/718,400	YANAVI, AURA	
	Examiner	Art Unit	
	Thuy Dao	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-21 is/are pending in the application.
- 4a) Of the above claim(s) 2, 12, 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-11 and 13-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to the amendment filed on November 7, 2006.
2. Claims 1, 3-11, and 13-21 have been examined.

Response to Amendments

3. Per Applicant's request, claims 1, 11, and 21 have been amended and claims 2, 12, and 22 have been canceled.
4. The objection to the specification is withdrawn in view of Applicant's amendments.

Response to Arguments

5. The Applicant is thanked for a thorough reply. Applicant's arguments filed on November 7, 2006 have been fully considered. However, they are moot in view of the new ground of rejection.

Claim Rejections – 35 USC §101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 1, 3-6, 10-11, 13-16, and 20-21 are directed to a judicial exception to 35 U.S.C. §101 and not directed to a practical application (i.e., the invention as claimed does not produce useful and tangible results) -see MPEP 2106(IV)(C)(2)(2)(a-b).

Claims 1, 11, and 21:

The claims merely recited, "...*determining the relative size ... forecasting the number of software defects...*" and stopped short at these limitations, which do not produce useful and tangible results as cited in claims 7-9 and 17-19.

Under the principles of compact prosecution, claims 1, 11, and 21 have been examined as the Examiner anticipates the claims will be amended to obviate these 35 USC §101 rejections. For example, - "...forecasting the number of software defects for

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the upcoming software release based on the relative size of the upcoming software release and the number or observed software defects for the baseline software release, wherein the number of software defects is incorporated into a project management system- - as disclosed in the specification, page 3, lines 17-18.

Claims 3-5 and 13-15:

These claims recited the wherein limitations of the forecasting step, which do not produce useful and tangible results as cited in claims 7-9 and 17-19. Under the principles of compact prosecution, claims 3-5 and 13-15 have been examined as the Examiner anticipates the claims will be amended to obviate these 35 USC §101 rejections. For example, - -... wherein the [[forecasting]] step of forecasting the number of software defects for the upcoming software release includes ...- -.

Claims 6 and 16:

These claims further limitations of independent claims 1 and 11, respectively, which do not produce useful and tangible results as cited in claims 7-9 and 17-19. Under the principles of compact prosecution, claims 6 and 16 have been examined as the Examiner anticipates the claims will be amended to obviate these 35 USC §101 rejections. For example, merging claims 6 with 7 and claims 16 with 17.

Claims 10 and 20:

These claims further limitations of independent claims 1 and 11, respectively, which do not produce useful and tangible results as cited in claims 7-9 and 17-19. Under the principles of compact prosecution, claims 10 and 20 have been examined as the Examiner anticipates the claims will be amended to obviate these 35 USC §101 rejections. For example, - -... wherein the baseline software release is selected by a user using said project management system.- -.

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8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 3, 6, 11, 13, 16, and 21 are rejected under 35 U.S.C. 103(a) as being anticipated by McConnell (art of record, "Gauging Software Readiness with Defect Tracking") in view of "A Critique of Software Defect Prediction Models", IEEE 1999, to Fenton et al. (art of record, IDS document filed November 20, 2003, hereinafter "Fenton").

Claim 1:

McConnell discloses *a method for predicting the number of software defects for an upcoming software release, comprising the steps of:*

determining the relative size of the upcoming software release with respect to a baseline software release (e.g., page 136, paragraphs 3-4, determining relative size of the upcoming software release Version 3.0 with respect to baseline software releases Version 2.0 and 1.0); and

forecasting the number of software defects for the upcoming software release based on the relative size of the upcoming software release and the number of observed software defects for the baseline software release (e.g., page 136, paragraph 4, Version 3.0 with Version 1.0 and forecasting at least 650 defects in Version 3.0; Version 3.0 with Version 2.0 and forecasting at least 950 defects in Version 3.0).

determining the relative size of the upcoming software release with respect to a baseline software release includes the steps of:

determining the number of new test requirements for the upcoming software release (e.g., paragraph 4, determining 100,000 new lines of code in upcoming Version 3.0);

determining the number of test requirements for the baseline software release (e.g., paragraph 2, in Version 1.0, determining 100,000 lines of code associated with 700 defects; paragraph 3, in Version 2.0, determining 100,000 lines of code associated with 950 defects); and

dividing the number of new test requirements for the upcoming software release by the number of test requirements for the baseline software release (e.g.,

paragraphs 4 and 16, Version 3.0 with Version 1.0, after dividing said numbers 100,000/100,000 and based on said results, forecasting 700 defects in Version 3.0;

paragraphs 4 and 16, Version 3.0 with Version 2.0, after dividing said numbers 100,000/100,000 and based on said results, forecasting 1000 defects in Version 3.0; and

paragraph 5, Version 3.0 with other 10 baseline projects, after dividing said numbers and based on said results, forecasting 740 defects in Version 3.0).

McConnell does not explicitly disclose *the number of software defects is incorporated into a project management system.*

However, in an analogous art, Fenton further discloses *the number of software defects is incorporated into a project management system* (e.g., FIG 5 and related text in page 685, section 7.3 - A Prototype BBN).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teaching of Fenton into that of McConnell. One would have been motivated to do so to better gauge the likely delivered quality and maintenance effort in software development as suggested by Fenton (e.g., page 675, abstract).

Claim 3:

The rejection of claim 1 is incorporated. McConnell also discloses *the forecasting step includes multiplying the number of observed software defects for the baseline*

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software release by the relative size of the upcoming software release (e.g., page 136, paragraphs 2-4).

Claim 6:

The rejection of claim 1 is incorporated. McConnell also discloses *determining a quality measurement for the upcoming software release based on the actual number of software defects for the upcoming software release relative to the forecasted number of software defects for the upcoming software release (e.g., page 135, paragraph 15).*

Claim 11:

Claim 11 is a system version, which recites the same limitations as those of claim 1, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the reference teaches all of the limitations of the above claim, it also teaches all of the limitations of claim 11.

McConnell does not explicitly disclose *the number of software defects is incorporated into a project management system and an output device for outputting the forecasted number of software defects for the upcoming software release.*

However, in an analogous art, Fenton further discloses *the number of software defects is incorporated into a project management system and an output device for outputting the forecasted number of software defects for the upcoming software release (e.g., FIG 5 with numbers of Defects Introduced, Defects Detected, Residual Defect Count and related text in page 685, section 7.3).*

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teaching of Fenton into that of McConnell. One would have been motivated to do so to better gauge the likely delivered quality and maintenance effort in software development as suggested by Fenton (e.g., page 675, abstract).

Claims 13 and 16:

Claims 13 and 16 are system versions, which recite the same limitations as those of claims 3 and 6, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the reference teaches all of the limitations of the above claims, it also teaches all of the limitations of claims 13 and 16.

Claim 21:

Claim 21 is a program storage device readable by a machine version, which recites the same limitations as those of claims 1 and 11, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the reference teaches all of the limitations of the above claims, it also teaches all of the limitations of claim 21.

10. Claims 4-5, 7-8, 14-15, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over McConnell in view of Fenton and further in view of Yu (art of record, "An Analysis of Several Software Defect Models").

Claim 4:

The rejection of claim 1 is incorporated. McConnell also discloses *forecasting step includes multiplying the number of observed software defects for the baseline software release by the sum of the relative size of the upcoming software release* (e.g., page 136, paragraphs 2-4).

McConnell does not explicitly disclose *a regression defect factor*. However, Yu further discloses *a regression defect factor* (e.g., page 1262, paragraph 4).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the above teachings. One would have been motivated to include these factors in the forecasting of defects because taking into account whether features in a previous version are still working properly in a new version will lead to a more accurate defect prediction (page 1262).

Claim 5:

The rejection of claim 1 is incorporated. McConnell also discloses *forecasting step includes multiplying the number of observed software defects for the baseline*

software release by the sum of the relative size of the upcoming software release (e.g., page 136, paragraphs 2-4).

McConnell does not explicitly disclose *a refactoring factor*. However, Yu further discloses *a refactoring factor* (e.g., page 1262, paragraph 4).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the above teachings. One would have been motivated to do so to as set forth in claim 4 above.

Claim 7:

The rejection of claim 6 is incorporated. Yu further discloses *the quality measurement is used by a project management system* (e.g., page 1261, Introduction).

Claim 8:

The rejection of claim 1 is incorporated. Yu further discloses *number of software defects for the upcoming software release is used by a project management system* (e.g., page 1261, Introduction).

Claims 14-15 and 17-18:

Claims 11-15 and 17-18 are system versions, which recite the same limitations as those of claims 4-5 and 7-8, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the reference teaches all of the limitations of the above claims, it also teaches all of the limitations of claims 14-15 and 17-18.

11. Claims 9-10 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over McConnell in view of Fenton and further view of Hedstrom (art of record, US Patent 6,477,471).

Claim 9:

The rejection of claim 1 is incorporated. Hedstrom further discloses *information used to forecast the software defects is graphically depicted* (e.g. col.4: 11-13).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the above teachings. One would have been motivated to do so because it is crucial for software development that information is presented to the user and for this user to have the ability to access and perform tasks on the different parts of the software (e.g., col.2: 19-44).

Claim 10:

The rejection of claim 1 is incorporated. Hedstrom further discloses *the baseline software release is selected by a user* (e.g., col.3: 35-47).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the above teachings. One would have been motivated to do so as set forth in claim 9 above.

Claims 19-20:

Claims 19-20 are system versions, which recite the same limitations as those of claims 9-10, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the reference teaches all of the limitations of the above claims, it also teaches all of the limitations of claims 19-20.

Conclusion

12. The prior art of record (now provided in full text, wherein the abstracts were previously provided in the IDS filed November 20, 2003) is considered pertinent to applicant's disclosure:

"Integrating Metrics and Models for Software Risk Assessment", 1996, Hudepohl et al.

"Reliability Analysis of Large Software Systems: Defect Data Modeling", 1990, Levendel.

"Understanding the Sources of Software Defects: A Filtering Approach", 2000, Wohlin et al.

"Defect Prevention through Defect Prediction: A Case Study at Infosys", 2001, Mohapatra et al.

"Understanding and Predicting the Process of Software Maintenance Releases", 1996, Basili et al.

13. Any inquiry concerning this communication should be directed to examiner Thuy Dao (Twee), whose telephone is (571) 272 8570. The examiner can normally be reached on Monday, Tuesday, Thursday, and Friday from 6:00AM to 4:30PM.

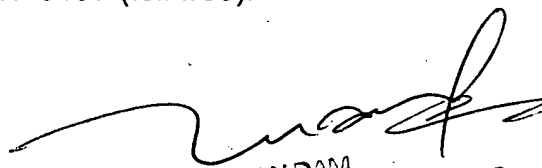
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam, can be reached at (571) 272 3695.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is (571) 272 2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T. Dao



TUAN DAM
SUPERVISORY PATENT EXAMINER